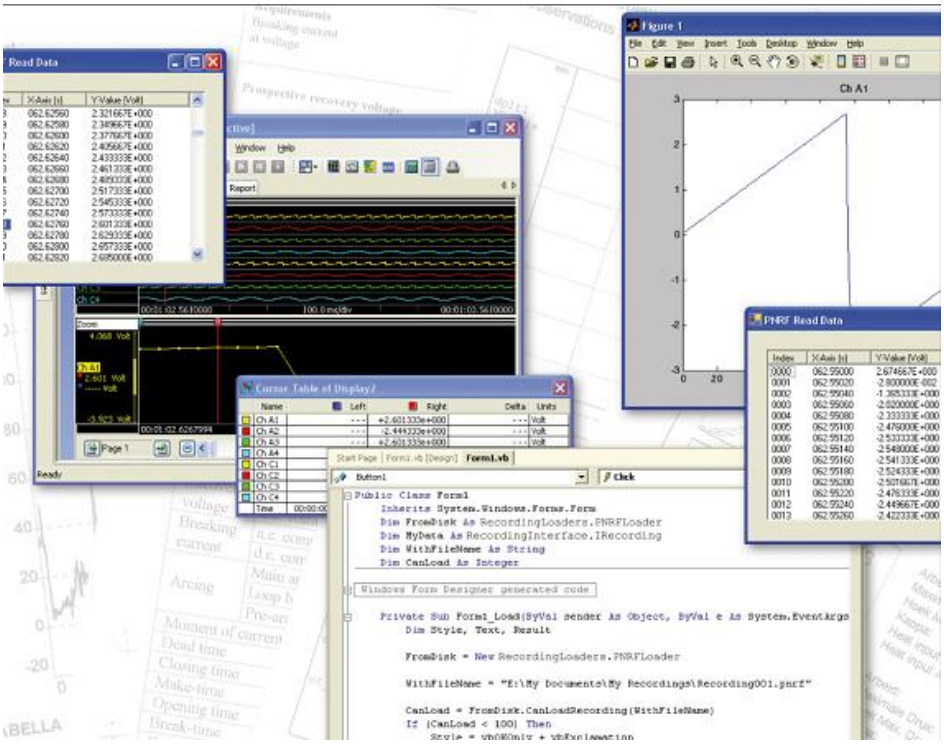
Genesis HIGH SPEED

Training

English



Perception PNRF Reader Asynchronous dataTraining

Document version 1.0 – November 2020

For Perception 7.18 or higher

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LAB 10 – Creating example of reading asynchronous data from a PNRF file

Start with *PnrfReader 2*

You can use the property ***TimeInfo*** of a data source (**IDataSrc**) to see the type of data it contains:

```
public interface IDataSrc
{
    …
    DataSourceTimeInfo TimeInfo
    …
}

There are three different time info's

public enum DataSourceTimeInfo
{
    DataSourceTimeInfo_Implicit = 0,
    DataSourceTimeInfo_Explicit = 1,
    DataSourceTimeInfo_External = 2
}
```

The first two enumerates are indicating that the data is synchronous, the last one (DataSourceTimeInfo_External) indicates asynchronous data. In this case each data sample has a Y-value and a time stamp.
The function WaveformWithTimes is used to get both the Y-values and time stamps. In the function below the Y-values are i

The following function is used to get the asynchronous data:

```
void WaveformWithTimes(DataSourceResultType ResultDataType, int FirstSample,
                int ResultCount, int Reduction, out object Data, out object Times);
```

This function will be used in the code below.

Purpose:

Creating pnrf reader program reading asynchronous data samples

- The code is now ready; you can compile it and use the debugger to examine your code.

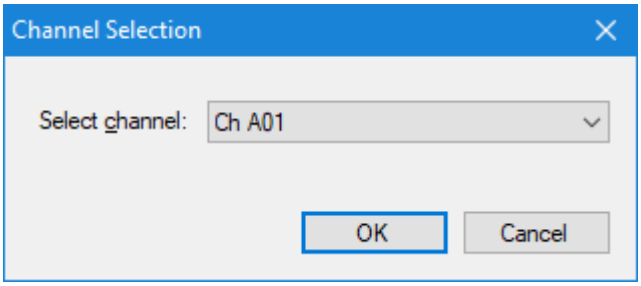
Result in *PnrfReader 10*

```
private void ShowRecordingData()
{
    PNRFLoader FromDisk = new PNRFLoader();

    string strRecordingFileName = edtSourceFileName.Text;
    IRecording myData = FromDisk.LoadRecording(strRecordingFileName);
    lblOutput.Text = myData.Title;
    listBox1.Items.Clear();

    if (myData.Channels.Count < 1)
    {
        MessageBox.Show("No Data");
        return;
    }
```

```
int nIndex = 1;
using (ChannelSelectionDialog dialog = new ChannelSelectionDialog())
{
    dialog.cbxChannelSelection.Items.Clear();
    for (int i = 1; i <= myData.Channels.Count; i++)
    {
        dialog.cbxChannelSelection.Items.Add(myData.Channels[i].Name);
    }
    dialog.cbxChannelSelection.SelectedIndex = 0;
    if (dialog.ShowDialog(this) == DialogResult.OK)
    {
        nIndex = dialog.cbxChannelSelection.SelectedIndex + 1;
    }
    else
    {
        return;
    }
}
IDataChannel myChannel = myData.Channels[nIndex];
listBox1.Items.Add(string.Format("Recording: {0}", myChannel.Recording.Title));
listBox1.Items.Add(string.Format("Recorder: {0} Channel: {1}",
                myChannel.Recorder.Name, myChannel.Name));
IDataSrc myDataSrc =
         myChannel.get_DataSource(DataSourceSelect.DataSourceSelect_Mixed);
bool isAsyncData = false;
if (myDataSrc.TimeInfo == DataSourceTimeInfo.DataSourceTimeInfo_Explicit)
{
    isAsyncData = true;
    listBox1.Items.Add(string.Format(
         "Data is asynchronous, data points are defined by Y value and explicit
          time stamp"));
}
else
{
    listBox1.Items.Add(string.Format(
                    "Data is synchronous, data points are equidistant"));
}

double dStartTime = myDataSrc.Sweeps.StartTime;
double dEndTime = myDataSrc.Sweeps.EndTime;

listBox1.Items.Add(string.Format("Recording Start: {0}, End: {1}",
              dStartTime, dEndTime));

listBox1.Items.Add("");
object mySegmentsData = null;
myDataSrc.Data(dStartTime, dEndTime, out mySegmentsData);

if (mySegmentsData == null)
{
    MessageBox.Show("No Data");
    return;
}

IDataSegments mySegments = mySegmentsData as IDataSegments;
if (mySegments == null)
{
    MessageBox.Show("No Segments");
    return;
}
if (mySegments.Count < 1)
{
    MessageBox.Show("No Segments");
    return;
}

IDataSegment mySegment = mySegments[1];

object oRawData = null;
object oTimes = null;

if (isAsyncData)
{
    mySegment.WaveformWithTimes(
          DataSourceResultType.DataSourceResultType_Double64, 1,
          mySegment.NumberOfSamples, 1, out oRawData, out oTimes);
}
else
```

```
        {
            mySegment.Waveform( DataSourceResultType.DataSourceResultType_Double64,
                 1, mySegment.NumberOfSamples, 1, out oRawData);
        }


        if (oRawData == null)
        {
            MessageBox.Show("No Raw Data");
            return;
        }

        double[] aSamples = oRawData as double[];
        double[] aX = null;
        if (isAsyncData)
        {
            aX = oTimes as double[];
        }
        double X0 = mySegment.StartTime;
        double DeltaX = mySegment.SampleInterval;
        double X, Y;

        for (int i = 0; i < aSamples.Length; i++)
        {
            if (isAsyncData)
            {
                X = aX[i];
            }
            else
            {
                X = X0 + i * DeltaX;
            }

            Y = aSamples[i];
            listBox1.Items.Add(string.Format("{0:000}:  X = {1}, Y = {2}", i, X, Y));

            // Do not show more then 500 samples
            if (i >= 500)
                break;
        }
    }
```

The Channel Selection dialog looks like:



In the combobox you can select a channel from the pnrf file.

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